

WHAT IS CLAIMED IS:

1. An image forming apparatus comprising:

a latent image formation portion which forms an electrostatic latent image on a photoreceptor based on an inputted image signal;

a development portion which causes a toner to adhere on the electrostatic latent image formed on the photoreceptor, to develop a toner image;

a transfer portion which transfers the toner image onto a paper sheet;

a carriage portion which carries the paper sheet;

a residual quantity detecting portion which detects a toner residual quantity of the development portion;

a first detecting portion which detects the toner residual quantity by using the residual quantity detecting portion during printing;

a second detecting portion which partially stops supply of power to each portion in the apparatus when shortage of the toner residual quantity is detected by the first detecting portion, and again detects the toner residual quantity by using the residual quantity detecting portion; and

a supply portion which supplies the toner to the development portion when the shortage of the toner residual quantity is detected by the second detecting portion.

2. The image forming apparatus according to claim 1, wherein redetection of the toner residual quantity by the second detecting portion is performed by stopping supply of power to the transfer portion.

5 3. The image forming apparatus according to claim 1, wherein redetection of the toner residual quantity by the second detecting portion is performed by stopping a carriage operation of the carriage portion.

10 4. The image forming apparatus according to claim 1, further comprising a detachment portion which detaches from the photoreceptor the paper sheet on which the image is transferred, wherein redetection of the toner residual quantity by the second detecting
15 portion is performed by stopping supply of power to the detachment portion.

 5. The image forming apparatus according to claim 1, wherein the second detecting portion redetects the toner residual quantity at the time of warming-up
20 of the apparatus.

 6. The image forming apparatus according to claim 5, wherein the warming-up is carried out immediately after a power supply of the apparatus is turned on.

25 7. The image forming apparatus according to claim 5, wherein the warming-up is carried out when one of doors provided to the apparatus is opened and

8. The image forming apparatus according to claim 5, wherein the warming-up is performed when a power saving mode is canceled after the apparatus is set to the power saving mode.

5 9. The image forming apparatus according to claim 1, wherein the supply portion performs supply of the power in a next printing operation.

10 10. The image forming apparatus according to claim 1, wherein, if the shortage of the toner residual quantity is detected by the first detecting portion during continuous printing in which images are continuously printed on a plurality of paper sheets, the supply portion performs toner supply after a predetermined number of paper sheets are printed.

15 11. The image forming apparatus according to claim 1, further comprising an image reading portion which optically reads an original image and provides an image signal corresponding to the original image to the latent image formation portion.

20 12. An image forming apparatus comprising:

 a latent image formation portion which forms an electrostatic latent image on a photoreceptor based on an inputted image;

25 a development portion which causes a toner to adhere on the electrostatic latent image formed on the photoreceptor, to develop a toner image;

 a transfer portion which transfers the toner image

onto a paper sheet;

a carriage portion which carries the paper sheet;

a residual quantity detecting portion which
detects a toner residual quantity of the development
5 portion;

a first detecting portion which detects the toner
residual quantity by using the residual quantity
detecting portion during printing;

a second detecting portion which redetects the
10 toner residual quantity by using the residual quantity
detecting portion after completion of a current
printing operation when shortage of the toner residual
quantity is detected by the first detecting portion;
and

15 a supply portion which supplies the toner to the
development portion when the shortage of the toner
residual quantity is detected by the second detecting
portion.

20 13. A toner supplying method for an image forming
apparatus comprising:

forming an electrostatic latent image on a
photoreceptor based on an inputted image signal;

causing a toner to adhere to the electrostatic
latent image formed on the photoreceptor by using a
25 developer and developing a toner image;

transferring the toner image onto a paper sheet;
detecting a toner residual quantity of the

developer during printing;

partially stopping supply of power to each portion
in the apparatus when shortage of the toner residual
quantity in the developer is detected, and again

5 detecting the toner residual quantity; and

supplying the toner to the development portion
when the shortage of the toner residual quantity is
detected as a result of redetection of the toner
residual quantity.

10 14. The toner supplying method for an image
forming apparatus according to claim 13, wherein
redetection of the toner residual quantity is performed
by stopping supply of power to the transfer portion.

15 15. The toner supplying method for an image
forming apparatus according to claim 13, wherein
redetection of the toner residual quantity is carried
out by stopping a carriage operation of the carriage
portion.

20 16. The toner supplying method for an image
forming apparatus according to claim 13, further
comprising a detachment portion which detaches from the
photoreceptor the paper sheet on which the image is
transferred, wherein redetection of the toner residual
quantity is carried out by stopping supply of power to
25 the detachment portion.

17. The toner supplying method for an image
forming apparatus according to claim 13, wherein supply

of the toner is performed in a next printing operation.

18. The toner supplying method for an image forming apparatus according to claim 13, wherein, when the shortage of the toner residual quantity is detected during continuous printing in which images are continuously printed on a plurality of paper sheets, the toner is supplied after printing a predetermined number of paper sheets.